PHARMACEUTICAL RESEARCH

Official Journal of the American Association of Pharmaceutical Scientists

Volume 4, Number 1 **February 1987**

CONTENTS

EDITORIAL 1

COMMENTARY

Targeted Drug Delivery—Some Pharmacokinetic Considerations 3
Gerhard Levy

REVIEW

Fast Atom Bombardment Mass Spectrometry and Its Application to the Analysis of Some Peptides and Proteins 5
Mark E. Hemling

RESEARCH ARTICLES

N-(2-Cyanoethyl)tranylcypromine, a Potential Prodrug of Tranylcypromine: Its Disposition and Interaction with Catecholamine Neurotransmitters in Brain 16
Adil J. Nazarali, Glen B. Baker, Ronald T. Coutts, and T. F. James Wong

Synthesis and Hypolipidemic Activity of 3-Imino-1-oxoisoindolines in Rodents 21
Akula R. K. Murthy, Oi T. Wong, David J. Reynolds, and Iris H. Hall

A Reversed-Phase High-Performance Liquid Chromatography Assay Procedure for Progabide and Its Related Metabolic Derivatives 28
Nidal F. Farraj, Stanley S. Davis, Graham D. Parr, and Howard N. E. Stevens

REPORTS

Dose-Dependent Pharmacokinetics of a New Oral Cephalosporin, Cefixime, in the Dog 33
Meir Bialer, Vijay K. Batra, John A. Morrison, B. Michael Silber, Zee M. Look, and Avraham Yacobi

High-Performance Liquid Chromatographic Assay for Thyrotropin Releasing Hormone and Benzyl Alcohol in Injectable Formulation 38
Gowdahalli N. Subba Rao, Jerry W. Sutherland, and Gopi N. Menon

Stability of Lidocaine in Aqueous Solution: Effect of Temperature, pH, Buffer, and Metal Ions on Amide Hydrolysis 42
Michael F. Powell

Improved Radioreceptor Assay of Opiate Narcotics in Human Serum: Application to Fentanyl and Morphine Metabolism 46
Viktorya Levi, James C. Scott, Paul F. White, and Wolfgang Sadée

CONTENTS (Continued)

Subcellular Distribution of Basic Drugs Accumulated in the Isolated Perfused Lung 50
Hisahiro Yoshida, Katsuhiko Okumura, and Ryohei Hori

Automated Stability-Indicating High-Performance Liquid Chromatographic Assay for Ethinyl Estradiol and (Levo)norgestrel Tablets 54
Van D. Reif, W. Mark Eickhoff, John K. Jackman, and Nicholas J. DeAngelis

Application of Moment Analysis to Nonlinear Drug Disposition Described by the Michaelis–Menten Equation 59
Andrew T. Chow and William J. Jusko

Effects of Plasma Proteins on Degradation Properties of Poly(L-lactide) Microcapsules 62
Kimiko Makino, Hiroyuki Ohshima, and Tamotsu Kondo

Dissociation of the Natriuretic and Antikaliuretic Properties of Triamterene Derivatives by Dose–Response Experiments 66
Helmut Priewer, Erwin Wolf, Helga Kraft, Heinrich Knauf, and Ernst Mutschler

Drug Release from Tablets Containing Cellulose Acetate Phthalate As an Additive or Enteric-Coating Material 70
Shan-Yang Lin and Y. Kawashima

NEWS RELEASE

Report of the Workshop on Controlled-Released Dosage Forms: Issues and Controversies 75
Jerome P. Skelly, William H. Barr, Leslie Z. Benet, James T. Doluisio, Arthur H. Goldberg, Gerhard Levy, David T. Lowenthal, Joseph R. Robinson, Vinod P. Shah, Robert J. Temple, and Avraham Yacobi

LETTER

The Effect of Density on the Gastric Emptying and Intestinal Transit of Solid Dosage Forms: Comments on the Article by Davis *et al.* 78
Lydia C. Kaus

ASSOCIATION NEWS AND ANNOUNCEMENTS 79

PHARMACEUTICAL RESEARCH

Official Journal of the American Association of Pharmaceutical Scientists

Volume 4, Number 2 **April 1987**

CONTENTS

COMMENTARY

Managing Potential Conflicts of Interest in University–Industrial Partnerships 83
Michael A. Schwartz

REVIEWS

Kinetic-Effect Models and Their Applications 86
Joachim Grevel

Use of Vaccinia Virus to Express Biopharmaceutical Products 92
Dennis E. Hruby and Gary Thomas

RESEARCH ARTICLES

Kinetics and Mechanism of Captopril Oxidation in Aqueous Solution Under Controlled Oxygen Partial Pressure 98
Tak-Yee Lee and Robert E. Notari

Water Vapor Sorption of Water-Soluble Substances: Studies of Crystalline Solids Below Their Critical Relative Humidities 104
Mark J. Kontny, George P. Grandolfi, and George Zografi

Effect of Pyrimidine Nucleosides on Body Temperatures of Man and Rabbit in Relation to Pharmacokinetic Data 113
Godefridus J. Peters, Cees J. van Groeningen, Emile Laurensse, Ineke Kraal, Albert Leyva, Jan Lankelma, and Herbert M. Pinedo

Selection of a Derivative of the Antiviral Agent 9-[(1,3-Dihydroxy-2-proproxy)-methyl]Guanine (DHPG) with Improved Oral Absorption 120
Eric J. Benjamin, Bruce A. Firestone, Robert Bergstrom, Marian Fass, Ian Massey, Irene Tsina, and Ya-Yun T. Lin

REPORTS

Identification of Prescription Drugs in Adulterated Chinese Herbal Medications 126
Thomas Cairns, Emil G. Siegmund, and Bobby R. Rader

Prostaglandin Derivative PGB_x Improves Neurologic Recovery After Ischemic Spinal Injury 130
Thomas P. Jacobs, John M. Hallenbeck, Thomas M. Devlin, and Giora Z. Feuerstein

A High-Performance Liquid Chromatographic Microassay Employing a Liquid–Solid Extraction Technique for Etintidine in Plasma 133
Shiew-Mei Huang, Elaine Rubin, and Thomas B. Marriott

The Solid-State Decarboxylation of the Diammonium Salt of Moxalactam 137
Stephen R. Byrn, Phillipe Perrier, Chung-Tang Lin, Herberto Martinez, and Ralph R. Pfeiffer

Binding of Basic Drugs to Rat Lung Mitochondria 142
Ryohei Hori, Katsuhiko Okumura, and Hisahiro Yoshida

A Naloxone–Steroid Hybrid Azine with Selective and Long-Acting Opioid Antagonism at Delta-Receptors *In Vitro* 147
Ahmet Koman, Vera M. Kolb, and Lars Terenius

Influence of Tablet Dissolution on Furosemide Bioavailability: A Bioequivalence Study 150
Patrick J. McNamara, Thomas S. Foster, George A. Digenis, Rajani B. Patel, William A. Craig, Peter G. Welling, Rao S. Rapaka, Vadlamani K. Prasad, and Vinod P. Shah

A Novel Method for the Synthesis of Kyotorphin, Tyr-Arg, and ^{3}H-Tyr-Arg, Catalyzed by Tyrosyl-tRNA Synthetase from *Bacillus stearothermophilus* 154
Senji Kitabatake, Ryoichi Tsurutani, Hiroshi Nakajima, Kosuke Tomita, Yoshihiro Yoshihara, Hiroshi Ueda, Hiroshi Takagi, and Kazutomo Imahori

Phenolic Cyclization of Epinephrine, Metaproterenol, Metaraminol, Phenylephrine, and Terbutaline with Formaldehyde 158
Lester Chafetz and Ramazan Turdiu

A New Parenteral Emulsion for the Administration of Taxol 162
B. D. Tarr, T. G. Sambandan, and S. H. Yalkowsky

Synthesis and Pharmacological Activity of *N*-Alkyl-1,2-Diphenylethanolamines 166
Humeida A. El-Obeid, Abdul Azim E. Madani, Khalid A. Al-Rashood, Kamal E. H. El Tahir, Abdul Karim Tilmisani, and Mahmoud E. Ibrahim

TECHNICAL NOTE
In Vitro and *In Vivo* Interactions of Furosemide and Sucralfate 171
Ahmed H. Hikal, Larry A. Walker, and Thirucote Ramachandran

ASSOCIATION NEWS AND ANNOUNCEMENTS 173

PHARMACEUTICAL RESEARCH

Official Journal of the American Association of Pharmaceutical Scientists

Volume 4, Number 3 **June 1987**

CONTENTS

REVIEWS

A Critical Appraisal of Drug Stability Testing Methods 177
Robert B. Taylor and Amin S. H. Shivji

Immunoconjugates: Applications in Targeted Drug Delivery for Cancer Therapy 181
Bhanu P. Ram and Praveen Tyle

RESEARCH ARTICLES

Radioreceptor Assay for Insulin Formulations 189
Lars Sjödin and Eila Viitanen

An Equation for the Systemic Availability of Drugs Undergoing Simultaneous Enterohepatic Cycling, First-Pass Metabolism, and Intestinal Elimination 195
Theresa A. Shepard and Richard H. Reuning

Efficacy of 5-Vinyl-1-β-D-arabinofuranosyluracil (VaraU) Against Herpes Simplex Virus Type 2 Strains in Cell Cultures and Against Experimental Herpes Encephalitis in Mice: Comparison with Acyclovir and Foscarnet 200
Jürgen Reefschläger, Peter Wutzler, Klaus-Dieter Thiel, and Gottfried Herrmann

Synthesis and Properties of Haptens for the Development of Radioimmunoassays for Thioridazine, Mesoridazine, and Sulforidazine 207
Bhaswat S. Chakraborty, Manik S. Sardessai, Theodore J. Jaworski, Kamal K. Midha, and Edward M. Hawes

Kinetics and Mechanism of Zinc Ion-Mediated Degradation of Cephalosporins in Tromethamine Solution 214
Hisao Tomida, Kazuya Kohashi, Yasuto Tsuruta, Setsuo Kiryu, and Michael A. Schwartz

Cosolvency and Cosolvent Polarity 220
Joseph T. Rubino and Samuel H. Yalkowsky

REPORTS

Cosolvency and Deviations from Log-Linear Solubilization 231
Joseph T. Rubino and Samuel H. Yalkowsky

Identification of Phenolic Antioxidants in Elastomers for Pharmaceutical and Medical Use 237
Charles B. Airaudo, André Gayte-Sorbier, Roland Creusevau, and Régine Dumont

Kinetics of Drug Action in Disease States. XXII. Effects of Contraceptive Steroids on the Pharmacodynamics of Ethanol in Rats 240
Sompon Wanwimolruk and Gerhard Levy

Adsorption of Inorganic and Organic Ions to Polycarbophil as a Means of Sustained-Release Dosage Formulation 244
Norman A. See, James Russell, Kenneth A. Connors, and Paul Bass

CONTENTS (Continued)

Effects of Hypothermia on Drug Absorption 248
Salomon Stavchansky and I-lan Tung

Effect of Amiodarone and Desethylamiodarone on the Pharmacokinetics of Antipyrine in the Rat 251
Craig K. Svensson, Li-Ling Liu, and Philip W. Knowlton

TECHNICAL NOTES

Preformulation Salt Selection. Physical Property Comparisons of the Tris(hydroxymethyl)aminomethane (THAM) Salts of Four Analgesic/Antiinflammatory Agents with the Sodium Salts and the Free Acids 255
Leo Gu and Robert G. Strickley

Analysis of the Antimalarial Sesquiterpene Artemisinin in *Artemisia annua* by High-Performance Liquid Chromatography (HPLC) with Postcolumn Derivatization and Ultraviolet Detection 258
Hala N. ElSohly, E. M. Croom, and M. A. ElSohly

A Reversed-Phase High-Performance Liquid Chromatographic (HPLC) Assay for the Determination of Biotin in Multivitamin-Multimineral Preparations 261
Sharon L. Crivelli, Peter F. Quirk, Daniel J. Steible, and S. P. Assenza

OBITUARY 263
Dr. Takeru Higuchi (1918–1987)

NEWS RELEASE

FDA and AAPS Report of the Workshop on Principles and Practices of In Vitro Percutaneous Penetration Studies: Relevance to Bioavailability and Bioequivalence 265
Jerome P. Skelly, Vinod P. Shah, Howard I. Maibach, Richard H. Guy, Ronald C. Wester, Gordon Flynn, and Avraham Yacobi

ASSOCIATION NEWS AND ANNOUNCEMENTS 268

PHARMACEUTICAL RESEARCH

Official Journal of the American Association of Pharmaceutical Scientists

Volume 4, Number 4 August 1987

CONTENTS

REVIEWS

The Lipoidal Permeability Barriers of the Skin and Alimentary Tract 271
William Curatolo

Protein Degradation: The Role of Mixed-Function Oxidases 278
Valerie Daggett

Enantiomeric Resolution of Drug Compounds by Liquid Chromatography 285
H. Thomas Karnes and Mohamadi A. Sarkar

RESEARCH ARTICLES

Disposition and Tumor Localization of Mitomycin C–Dextran Conjugates in Mice 293
Yoshinobu Takakura, Akira Takagi, Mitsuru Hashida, and Hitoshi Sezaki

Validation of Fiber-Optic Doppler Anemometry (FODA) for Characterizing the Droplet Size of Emulsions 301
Barbara J. Floy, Joe L. White, and Stanley L. Hem

Coupling of Naltrexone to Biodegradable Poly(α-Amino Acids) 305
Naoki Negishi, David B. Bennett, Chong-Su Cho, Seo Young Jeong, Wolfgang A. R. Van Heeswijk, Jan Feijen, and Sung Wan Kim

Computer-Aided Dosage Form Design. I. Methods for Defining a Long-Acting First-Order Delivery System of Maximum Formulating Flexibility 311
Tak-Yee Lee and Robert E. Notari

REPORTS

N-Mannich-Base Prodrugs of 5-Iodo-2′-deoxycytidine as Topical Delivery Enhancers 317
Suzanne A. M. Koch and Kenneth B. Sloan

Synthesis and Biological Activity of Isodithiobiurets, Dithiobiurets, and Dithiazoles 321
Surendra N. Pandeya, Ashok Kumar, Bhav N. Singh, and Dina N. Mishra

High-Performance Liquid Chromatographic (HPLC) Assay Using Fluorescence Detection for the Simultaneous Determination of Gallopamil and Norgallopamil in Human Plasma 327
Angus M. McLean, Elizabeth Babcock-Atkinson, Kathleen Rein, Donald A. Ruggirello, Mario A. Gonzalez, and Patrick K. Noonan

Pharmacokinetics of Gold Sodium Thiomalate in Rabbits 332
Srikumaran Melethil and Darryle Schoepp

Validation of a Flow-Through Diffusion Cell for Use in Transdermal Research 337
William J. Addicks, Gordon L. Flynn, and Norman Weiner

Temperature and pH Dependence of Fluocinolone Acetonide Degradation in a Topical Cream Formulation 342
Richard A. Kenley, Maryann Ott Lee, Lakshmi Sukumar, and Michael F. Powell

CONTENTS (Continued)

Effects of Formulation and Food on the Absorption of Hydrochlorothiazide and Triamterene or Amiloride from Combination Diuretic Products 348
Roger L. Williams, Joyce Mordenti, Robert A. Upton, Emil T. Lin, Winnie L. Gee, Cheryl D. Blume, and Leslie Z. Benet

TECHNICAL NOTES
Microbial Transformation of Tamoxifen 353
Saleh El-Sharkawy and Yusuf J. Abul-Hajj

Binding of Piroxicam to Human Serum Albumin: Effect of Piroxicam on Warfarin and Diazepam Binding 355
Kenji Matsuyama, Asok C. Sen, and John H. Perrin

EDITORIAL 358

ASSOCIATION NEWS AND ANNOUNCEMENTS 359

PHARMACEUTICAL RESEARCH

Official Journal of the American Association of Pharmaceutical Scientists

Volume 4, Number 5 **October 1987**

CONTENTS

COMMENTARY

Emerging Trends in Biotechnology: A Perspective from the Pharmaceutical Industry 361
William Szkrybalo

REVIEWS

Renin Inhibitors 364
William J. Greenlee

Recombinant Tissue Plasminogen Activator: A Brief Review 375
Elliott B. Grossbard

RESEARCH ARTICLES

Development of Acute Tolerance to Bumetanide: Bolus Injection Studies 379
Jack A. Cook and David E. Smith

Computer-Aided Dosage Form Design. II. Methods for Defining a Zero-Order Sustained-Release Delivery System of Maximum Formulating Flexibility 385
Tak-Yee Lee and Robert E. Notari

Diketopiperazine Formation, Hydrolysis, and Epimerization of the New Dipeptide Angiotensin-Converting Enzyme Inhibitor RS-10085 392
Leo Gu and Robert G. Strickley

REPORTS

Estimation of Surface Polarity of Silicas by Absorption Spectroscopy of Glycerin Suspensions of Adsorbed 6-Nitrobenzoindolinopyran 398
Michael J. Jozwiakowski and Kenneth A. Connors

Multiple-Dose Pharmacokinetics of Clozapine in Patients 402
Miles G. Choc, Robert G. Lehr, Frances Hsuan, Gilbert Honigfeld, Harold T. Smith, Richard Borison, and Jan Volavka

Prostaglandin D_2 Inhibits Pentylenetetrazole-Induced Convulsions in Rats by a Serotonin-Mediated Mechanism 406
Salil K. Bhattacharya and Surendra S. Parmar

Bioavailability and Pharmacokinetics of a New Sustained-Release Potassium Chloride Tablet 409
Charles J. Betlach, John D. Arnold, R. Wayne Frost, Philip T. Leese, and Mario A. Gonzalez

Quantitative Analysis of Hydroxyurea and Urea by Proton Nuclear Magnetic Resonance (NMR) Spectroscopy 412
Karen B. Main, Thomas Medwick, Leonard C. Bailey, and John H. Shinkai

Analysis of *in Vitro* Dissolution of Whole vs. Half Controlled-Release Theophylline Tablets 416
Vinod P. Shah, Lawrence A. Yamamoto, Donald Schuirman, Jerome Elkins, and Jerome P. Skelly

CONTENTS (Continued)

Dose-Proportional Absorption of Etretinate After Doses of 25, 50, 75, and 100 mg 420
Robert J. Wills, Lolita C. Rodriguez, Amy H. Lin, Clara Puccini, and Wayne A. Colburn

Inhibition of Intestinal Pyrimidine Nucleoside Phosphorylases 425
M. Guill Wientjes and J. Lai-Sim Au

Polymorphism of 1,2-Dihydro-6-neopentyl-2-oxonicotinic Acid: Characterization, Interconversion, and Quantitation 429
Robert S. Chao and Kenneth C. Vail

TECHNICAL NOTES
Pharmacokinetics of Pentoxifylline During Concomitant Theophylline Administration to Rats 433
Mario L. Rocci, Jr., David R. Luke, and Consuelo L. Saccar

The Effect of Vehicle Additives on the Transdermal Delivery of Nitroglycerin 436
Thorsteinn Loftsson, Nancy Gildersleeve, and Nicholas Bodor

LETTER
Electrode Material in Iontophoresis 438
Lars Erik Linblad and Lena Ekenvall

NEWS RELEASE
Bio-Organic and Natural Products Chemistry Molecular Biology Workshop 439
Laurence H. Hurley, John Kozarich, and Michael Rogers

EDITORIAL 443

ASSOCIATION NEWS AND ANNOUNCEMENTS 444

PHARMACEUTICAL RESEARCH

Official Journal of the American Association of Pharmaceutical Scientists

Volume 4, Number 6 **December 1987**

CONTENTS

REVIEWS

The Influence of Drugs on Nasal Ciliary Movement 445
Walter A. J. J. Hermens and Frans W. H. M. Merkus

Electron-Transfer and Charge-Transfer Clastic Binding Hypotheses for Drug–Receptor Interactions 450
Vera M. Kolb

RESEARCH ARTICLES

Mechanisms of Mucoadhesion of Poly(acrylic Acid) Hydrogels 457
Haesun Park and Joseph R. Robinson

The Preparation and Evaluation of Drug-Containing Poly(*dl*-lactide) Microspheres Formed by the Solvent Evaporation Method 465
Roland Bodmeier and James W. McGinity

Hypolipidemic Activity of *o*-(*N*-Phthalimido)acetophenone in Sprague Dawley Rats 472
Iris H. Hall, David J. Reynolds, Oi T. Wong, C. Brent Oswald, and Akula R. K. Murthy

Investigation of the Gastrointestinal Transit and *In Vivo* Drug Release of Isosorbide-5-Nitrate Pellets 480
Wilfried Fischer, Anna Boertz, Stanley S. Davis, Raj Khosla, Willi Cawello, Klaus Sandrock, and Günther Cordes

REPORTS

Correlation of Ibuprofen Bioavailability with Gastrointestinal Transit by Scintigraphic Monitoring of ^{171}Er-Labeled Sustained-Release Tablets 486
Alan F. Parr, Robert M. Beihn, Robert M. Franz, Gregory J. Szpunar, and Michael Jay

Tissue Tolerance of Intramuscular Injectables and Plasma Enzyme Activities in Rats 490
Christian Surber and Heinz Sucker

In Vivo Efficacy of Antifungal Oxoaporphine Alkaloids in Experimental Disseminated Candidiasis 495
Alice M. Clark, E. Sue Watson, M. Khalid Ashfaq, and Charles D. Hufford

Between-Lot and Within-Lot Comparisons of Bioavailability of Macrocrystalline Nitrofurantoin Capsules 499
William D. Mason, John D. Conklin, and Francis J. Hailey

Measurement of the Particle Size of Tablet Excipients with the Aid of Video Recording 504
Kanneganti P. P. Prasad and Lucy S. C. Wan

Effect of Helenalin and Bis(helenalinyl)malonate on Nucleic Acid and Protein Synthesis in Human KB Carcinoma Cells 509
Iris H. Hall, Anne A. Grippo, Kuo-Hsiung Lee, Stephen G. Chaney, and David J. Holbrook

Effect of Hydralazine on the Elimination of Antipyrine in the Rat 515
Craig K. Svensson, Phillip W. Knowlton, and Joseph A. Ware

CONTENTS (Continued)

Percutaneous Absorption and Elimination of the Penetration Enhancer Azone in Humans 519
Johann W. Wiechers, Ben F. H. Drenth, Jan H. G. Jonkman, and Rokus A. De Zeeuw

Radiolabeling of Intact Dosage Forms by Neutron Activation: Effects on *In Vitro* Performance 524
Alan Parr and Michael Jay

Therapeutic Effect of Dexamethasone in T-2 Toxicosis 527
Esther Shohami, Burt Wisotsky, Oliver Kempski, and Giora Feuerstein

Kinetics of Potassium Excretion Following Oral Supplements: Evidence of Induced Natriuresis 531
Ashok Rakhit, Srikumaran Melethil, John D. Arnold, and William E. Wagner

LETTER
Assessment of Variance in Bioavailability Studies: Comments on the Article by McNamara *et al.* 536
Carl M. Metzler

ASSOCIATION NEWS AND ANNOUNCEMENTS 537

REVIEWERS FOR *PHARMACEUTICAL RESEARCH* (1987) 538

AUTHOR INDEX TO VOLUME 4 (1987) 541

SUBJECT INDEX TO VOLUME 4 (1987) 544

519
524
527
531
536
537
538
541
544